

## APPENDIX – 2009 Field Inspection Summaries

The summary<sup>1</sup> for each inspection represents typical observations noted during the field inspections and **does not** represent all of the problems or potential problems that may exist.

Utility: **ComEd** Investigators: **John Stutsman (Staff)**  
Feeder Ckt: **S431** City: **Odell** Voltage: **4/12kV** Date: **Monday, September 21, 2009**

The inspection started at substation DCS43 where a fence walk-around was done. Weeds were growing in the yard and vines were growing thru/on/over the fence which may provide cover/protection for animals. Corner fence posts are grounded. Neither of the 2 sets of gates are bonded to the gate posts. Some equipment rust. Animal guards noted on 12kV bushings of transformer and breaker. Where visible from the fence line transformer and bushing oil levels were OK. Numerous places were noted where animals could penetrate under the fence.

From DCS43 the inspection continued to circuit S431 where the following was observed: Ground wire nearly torn off of pole; various issues were observed in multiple locations with cross arms including disconnected cross arm braces, loose bolts supporting cross arms and/or braces, inadequately supported cross arms; at numerous locations ground wire covers were damaged or missing; ground rod projecting above the ground near pole; 2 locations where guy wires do not appear NESC 279 compliant; ragged pole tops; shell rotted poles; splintered pole tops; broken ground wire; over 14 locations were counted where ground wires had been cut at ground level and again at approximately 7 feet above ground level and that entire portion of wire was missing – at an additional location conduit had been cut and the ground wire had been removed from the side of a pole; a blown lightning arrester; leaning poles at 2 locations; loose insulator mount; at one location Staff was approached by a customer who volunteered that around December 1<sup>st</sup>, 2008, they had a 16 hour outage which he blamed on bad poles outside of town – he stated that he knew people who lived in the country who were without power for 5 days.



Equipment condition in substation



Vines & weeds at substation



NESC 279 compliance concern

<sup>1</sup> Detail was provided ComEd indicating the location of most deficiencies found on the respective circuits by Staff.

## APPENDIX – 2009 Field Inspection Summaries



Shell rot



Disconnected cross arm brace



Ground wire cut at approx 7 ft up pole



Conduit cut to remove ground wire



Loose insulator support



Blown Lightning Arrester

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Random Voltage: 4/12kV Date: Monday, September 21, 2009

Staff noted that on leaving the circuit S431 area while driving through Dwight the material condition equipment looked good and on an unidentified circuit later Staff identified a blown 12kV lightning arrester.

## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: C298 City: Niles & Chicago Voltage: 4/12kV Date: Tuesday, September 22, 2009

The inspection started at substation TSS129 where a partial fence walk-around was done. A large number of dead weeds were along the sides of the yard. Weeds were also growing in the yard and may provide cover/protection for animals. Animal fence was around distribution equipment & animal guards were noted on equipment. Where visible from the fence line transformer and bushing oil levels were OK.

From TSS129 the inspection continued to circuit C298 where the following was observed: Vines growing up poles – though in some cases the vines appeared dying/wilted; trees (including fast growing Silver Maples) near or into Primary at various locations and included possible electro-trimming at one location; heavy overhang/canopy above Primary in various locations (this could be problematic in bad weather); dead branches above Primary; loose hardware on Primary observed at three locations; line hose on Primary where tree is too close to Primary (eventually this tree will have to be removed at greater expense than if the tree had been addressed when it first entered the trim zone); at one location while noting a vine that was growing up a pole Staff was approached by a customer who complained about the excessive number of interruptions she had experienced in her service and then volunteered that her neighbor had planted the vine specifically to hide the pole – neither the customer nor her neighbor understood how from a reliability perspective this could be problematic in the future if the vine is allowed to grow up into the Primary; in one location Staff observed that one primary phase on a 3 phase 12kV feeder was attached to a cross arm without an insulator – only the wood of the cross arm and the pole was insulating one phase of the Primary from ground.



Dead weeds in Substation yard



Dist Gear fence & more weeds/vines in Substation yard



Vine growing on pole but not yet into Primary



## APPENDIX – 2009 Field Inspection Summaries



Tree near Primary



Primary into tree & heavy overhang



Loose hardware on Primary



No insulator on Primary – far right of bottom cross arm & side view of same location where insulator



Loose hardware & dead branches over Primary

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: Random City: Random Voltage: 4/12kV Date: Tuesday, September 22, 2009

Staff noted that on leaving the circuit C298 area between Chicago and the location of TSS71 a tree that was into the Primary.

## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: X7149 City: Chicago & Harwood Heights Voltage: 4/12kV Date: Tuesday, September 22, 2009

The inspection started at substation TSS71 where a partial fence walk-around was done. Minor vegetation noted along fence line inside substation. Bushing oil levels visible from the fence line were OK. There were numerous points along under the fence line for animal entry into substation.

From TSS71 the inspection continued to circuit X7149 where the following was observed: Vines growing up poles; trees near or into Primary at various locations; broken cross arm support; split and bad pole tops at various locations; some hardware issues



Bent pin, Bushing skirt appears to touch cross arm



Tree into Primary



Loose hardware



Split Pole Top at bolts supporting Insulator



Bad Pole Top



Broken cross arm support

## **APPENDIX – 2009 Field Inspection Summaries**

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Manager Regulatory Performance & Reporting (ComEd)  
Feeder Ckt: C046X City: Highwood/Highland Park Voltage: 4/12kV Date: Wednesday, September 23, 2009

The inspection started at substation TDC204 where a partial fence walk-around was done. Bushing oil levels visible from the fence line were OK.

From TDC204 the inspection continued to circuit C046X where the following was observed: Vines growth up pole and onto transformer; line hose protecting Primary that tree is too close; some minor material issues.



Vines up pole & onto Transformer



Line hose protecting Primary against tree



Loose animal guard on transformer bushing

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Manager Regulatory Performance & Reporting (ComEd)  
Feeder Ckt: Random City: Random Voltage: 4/12kV Date: Wednesday, September 23, 2009

Staff noted that on leaving the circuit C046X area on way to substation TSS152 there were trees into the Primary along Western Avenue.

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Manager Regulatory Performance & Reporting (ComEd)  
Feeder Ckt: E5213X City: Mount Prospect Voltage: 4/12kV Date: Wednesday, September 23, 2009

The inspection started at substation TSS152 where a partial fence walk-around was done. Bushing oil levels visible from the fence line were OK. Substation yard was clear & neat with only some weeds in the substation yard.

From TSS152 the inspection continued to circuit E5213X where the following was observed: Areas where new poles were apparent as well as new down-feed's & up-feed's (risers) with vegetation well trimmed in those areas; Primary contacting tree trunk; branch on Primary; bad pole top & loose hardware; at one location while Staff was observing a leaning pole that had a split in it and was braced with cross-arms on the side of the pole, Staff was approached by a customer who stated that the pole was leaning an additional 6 inches towards their business since the first of the year and if it continued to lean in further it would interfere with their ability to move a loading truck into their business.

## APPENDIX – 2009 Field Inspection Summaries



Leaning split pole with cross-arm braces on sides



branch on primary



Bad pole top lose hardware

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: K7090 City: Bourbonnais Voltage: 12kV Date: Monday, September 28, 2009

The inspection started at substation TSS70 where a partial fence walk-around was done. Bushing oil levels visible from the fence line were OK. Substation yard was clear & neat with only some dead weeds in the substation yard and trash that had blown up against the animal fence protecting the distribution gear/yard on the south side of the substation; some rust was seen on equipment in distribution yard; substation fence has had rock added to close many gaps under fence but some gaps are still visible where animals could enter the greater substation yard; some old oil leaks were visible at transformer 74 and the Load Tap Changer ("LTC") on transformer 79 appears to have been near full lower in the recent past.

From TSS70 the inspection continued to circuit K7090 where the following was observed: Primary all along Armour Road is being (has been) moved for road widening so this part of circuit K7090 is in very good condition with new poles, hardware, and aggressive vegetation management; in general lots of soft maples & silver maples are growing in areas near Primary; Silver Maple into Primary; a number of minor hardware issues were observed; at several locations significant overhang was observed;.



## APPENDIX – 2009 Field Inspection Summaries



LTC on Transformer 79



Damaged ground guard & riser guard



ground wire pulled away



Silver Maple & Primary

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Bourbonnais Voltage: 4 or 12kV Date: Monday, September 28, 2009

Staff noted that on leaving the circuit K7090 area in route to the Chicago area there were vines on a pole near Herritage & Gettysburg Drive.

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: Z15093 City: Chicago Voltage: 4/12kV Date: Tuesday, September 29, 2009

The inspection started at substation TSS150. Due to limited access around the substation as well as the large size of the substation little could be determined about material condition of the substation. At the gate that Staff was at there was not a sign identifying the substation yard – ComEd noted that while main gates have signs not every gate on a substation has signs. Staff noted that in parts of the yard there were a lot of weeds and trees were located in the yard near the fence line.

From TSS150 the inspection continued to circuit Z15093 where the following was observed: bad pole tops; a blown lightning arrestor; loose hardware; Primary into tree; Jumpers from Primary to a Lightning arrestor were coiled – coiled jumpers introduce high impedance to high frequency current flows –reducing the effectiveness of the lightning arrestor.



## APPENDIX – 2009 Field Inspection Summaries



Trees & weeds in substation yard



Loose hardware



Blown Lightning arrester



Coiled jumpers to lightning arrester

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: G588 City: Calumet City Voltage: 4/12kV Date: Tuesday, September 29, 2009

The inspection started at substation TDC458 where a partial fence walk-around was done. Some weeds in substation yard; distribution gear/equipment is surrounded by animal fence within the yard and looks in good condition; lots of animal protection is visible on equipment; old oil leak is visible on transformer.

## APPENDIX – 2009 Field Inspection Summaries

From TDC458 the inspection continued to circuit G588 where the following was observed: about 10-12 feet of ground wire had been cut and stolen; part of a cross-arm had rotted out causing a pin supporting a Primary insulator to lean; branch on cross-arm and Primary.



Equipment condition/old oil leak(s)



Vines and Weeds in substation



animal protection visible on equipment



Ground wire cut and stolen from guard



Pin loose in Cross-arm



Branch on Cross-arm & Primary

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Senior Engineer (ComEd)  
Feeder Ckt: Random City: Random Voltage: 4/12kV Date: Tuesday, September 29, 2009

In traveling to and from the G588 area Staff observed the following in Chicago, Calumet City and Lansing: Silver Maples into the Primary in multiple locations; vines were observed on a pole; trees close to Primary in multiple locations; unidentified trees into the Primary in a vast number of locations; trees were into the Primary and a pole mounted transformer at one location with tree problems with the Primary all along that street; in one location it was apparent that switches on the circuit would be difficult to reach and operate because of trees and at that location the Primary disappeared into the trees.

## APPENDIX – 2009 Field Inspection Summaries



Tree into Primary -- Chicago



Silver Maple into Primary



Trees into Primary



Branch on Primary

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Principal Regulatory Specialist (ComEd)  
Feeder Ckt: W665X City: Oak Brook Voltage: 4/12kV Date: Wednesday, September 30, 2009

The inspection started at substation TDC566 where a fence walk-around was done. Some weeds in substation yard; some rust visible on equipment; oil levels in bushings that were visible from the fence line were OK. LTCs visible from the fence line were OK.



## APPENDIX – 2009 Field Inspection Summaries

From TDC566 the inspection continued to circuit W665X where the following was observed: trees were into the Primary in multiple locations; branch laying on Primary with heavy overhang above Primary & branch with dead branches visible in that overhang; evidence of past vine growth on guy wire and secondary's but vines now appeared dead; bad pole top with broken cross arm brace; various minor hardware issues.



Trees into Primary



Trees into primary



Broken cross arm brace & bad pole top

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Principal Regulatory Specialist (ComEd)  
Feeder Ckt: Random City: Random Voltage: 4/12kV Date: Wednesday, September 30, 2009

In traveling from the W665X area to Substation TSS76 Staff observed vines growing up a guy wire to a two-bank transformer and the Primary.



Vines growing to Primary & transformer bank



## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff), Maintenance Inspection Supervisor (ComEd) & Principal Regulatory Specialist (ComEd)  
Feeder Ckt: G767 City: Harvey Voltage: 4/12kV Date: Wednesday, September 30, 2009

The inspection started at the gate leading to substation TSS76. The substation could not be observed from the gate..

The inspection continued to circuit G767 where the following was observed: two cases of broken guy wires wrapped around poles; three cases of vines growing up poles and onto nearby equipment; slack guy wire; one case where a slack span appeared low & have insufficient clearance; missing ground wire; secondary cut and hanging to the ground.



Broken Guy wire wrapped around pole



Broken Guy wire wrapped around pole



Vines on pole & lightning arrestor



Low Slack span

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Rural Voltage: 4/12kV Date: Thursday, October 1, 2009

In traveling to substation DCK18 Staff observed a broken cross arm brace.



Broken cross arm brace

## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: K187 City: Momence Voltage: 4/12kV Date: Thursday, October 1, 2009

The inspection started at substation DCK18 where a fence walk-around was done. The substation yard was neat & clean though signs of previous vegetation issues were visible in the yard; efforts had apparently been made to block the bottom of the fence to minimize animal entry; Transformers 2 & 3 bushing oil levels OK & LTC's appeared OK. Animal protection was on secondary bushings. 4 of 5 gates to substation DCK18 were bonded to gate post – the 5<sup>th</sup> gate had been bonded but the grounding strap appeared to have been broken.

From DCK18 the inspection continued to circuit K187 where the following was observed: the grounding wire had been cut away or damaged & removed providing no ground protection for a riser metal guard [NESC 215(C)(1)] or riser cable grounding sheath; leaning pole; improperly placed guy wire insulators for NESC 279 compliance at several locations; bad pole tops; multiple locations of damaged ground wire guards; multiple locations of vines growing on poles and in/on distribution hardware – in some cases vines appeared to be dying or dead; heavy overhang of trees; trees into the primary at two locations; broken guy wire wrapped around pole; split cross-arm exposing pin supporting insulator; broken cross-arm support; cross-arm leaning and possibly split; clearance issue with Primary too low to ground level.



Past vegetation issues at fence of substation



NESC 215(C)(1) Compliance Issue



NESC 279 Compliance Issue



4.1 Bad Pole Top



Tree into Primary



Vine on pole & into secondary cable guard

## APPENDIX – 2009 Field Inspection Summaries



NESC 279 Compliance Issue & Badly leaning pole



Tree contact with Primary



Split Cross-arm



Clearance issue with Primary too low



Vines on pole



Broken cross-arm brace



## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Rural Voltage: 4/12/34kV Date: Tuesday, October 13, 2009

In traveling to substation DCS35 Staff observed the following: cross-arm brace broken; damaged or missing ground wire cover/molding; two blown lightning arrestors; missing guy wire guard/marker; other minor material issues.



Ground wire hanging loose



Cut Ground Wire



Blown lightning arrestor



Broken Cross-Arm Brace

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: S355 City: Manville Voltage: 4/12kV Date: Tuesday, October 13, 2009

The inspection started at substation DCS35 where a fence walk-around was done. The substation yard was neat & clean though some minor rust spots were visible on some equipment; transformer bushing oil levels were OK though C phase is significantly lower than A or B phases; LTC was OK; animal guards on bushings and structure.

From DCS35 the inspection continued to circuit S355 where the following was observed in multiple locations: bad poles, bad pole tops; some split pole tops; loose and/or damaged hardware on poles; loose/hanging or damaged ground wires; missing or damaged ground covers/moldings; missing guy wire markers; slack guy wires; guy wire insulator placement not in NESC 279 compliance; metal riser (down-feed) secondary guard not grounded per NESC 215(C)(1); broken or damaged cross-arm braces; broken/damaged or split cross-arms; Primary into (direct contact) or close to (but not in contact) trees; twisted cross-arm; a dead tree near Primary (the Primary did have line hose on it); when staff was looking at an area where trees were close to but not in direct contact with the Primary in little or no wind a Customer came out and volunteered to Staff their power goes out frequently; at another location when Staff was observing a slack guy wire that was also missing a guy guard/marker a Customer approached and volunteered to Staff that guy wire had never had any tension in it for at least the last 15 years.



## APPENDIX – 2009 Field Inspection Summaries



Substation yard was neat & clean



Bushing Oil levels – C phase on left



Area clear around substation fence



Split pole top



Bad pole top & loose hardware



Loose hardware & bad pole top



Loose guy wire



Broken cross-arm brace



Both cross-arm braces are disconnected (pin connecting them to pole is missing)

## APPENDIX – 2009 Field Inspection Summaries



Bad/damaged pole



Broken cross-arm brace



Broken cross-arm brace



Down guy insulator placement



Split pole top



Ground molding loose



Metal guard not grounded & damaged moldings



Line hose near dead tree



Primary into tree



Both cross-arm braces & cross-arm are broken/damaged

## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Rural Voltage: 4 or 12kV Date: Tuesday, October 13, 2009

In traveling from circuit S355 area to Elgin Staff observed along IL-71 an number of locations where guy wire insulator placement did not appear NESC 279 compliant.

Utility: ComEd Investigators: John Stutsman (Staff) & Tiffany Ingram (Staff)  
Feeder Ckt: W7217 City: Elgin Voltage: 12kV Date: Wednesday, October 14, 2009

The inspection started at substation TDC572 where a partial fence walk-around was done and Staff observed: some equipment & trash/clutter in substation yard; bushing oil levels that are visible from the fence line were OK; conduit was stacked in the substation yard; gates were not bonded to gate posts.

From TDC572 the inspection continued to circuit W7217 where the following was observed: secondary taped off and hanging; trees into (in contact) or close to (not in direct contact) with Primary at multiple locations; heavy overhang of trees; leaning pole; a number of evergreens have been planted under the Primary; transformers overgrown with vegetation/vines at multiple locations; vine growing up-to & onto overhead equipment/device; center Primary mounting hardware bent; loose hanging unidentified wire; missing ground connection on riser metal guard; possible operational hazard for branches encroaching on work space for overhead equipment/device.



Equipment & trash/clutter in substation yard



Secondary taped and hanging



leaning pole – note evergreens planted under Primary



## APPENDIX – 2009 Field Inspection Summaries



Branches hazard to working on equipment/device



Heavy overhang of trees



Branches in primary



Overgrowth on Transformer -- view from West & view from East



Overgrowth on 3-bank Transformer – North view & South view



Branches close to primary



Vines growing into device



Vines growing up-to/onto transformer



Bent insulator mount



## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff) & Tiffany Ingram (Staff)  
Feeder Ckt: W6917 City: Sugar Grove Voltage: 12kV Date: Wednesday, October 14, 2009

The inspection started at substation TDC569. Staff was unable to do a substation fence walk around. The entrance to the substation follows a transmission corridor Right-Of-Way ("ROW") – outside the substation gate in the ROW had been a small grove of trees that were recently cut down and the trimmed materials were stacked on the ground – the leaves on the branches were still green indicating recent cutting.

From TDC569 and the transmission ROW the inspection continued to circuit W6917 where the following was observed: Multiple locations with lots of overhang above Primary; missing guy wire guard/marker; loose guy wire guard/marker; improper insulator placement per NESC 279<sup>2</sup>; missing ground guard/cover; broken ground wire; missing ground wire; multiple locations of bad poles; twisted cross-arm; slack guy wire.



Trees recently cut down in Transmission ROW



Aerial view of ROW before Trees were removed



Misplaced Insulators in guy wire



Broken ground wire



Loose/slack guy wire



Twisted cross-arm

<sup>2</sup> Illinois Administrative Code 305 was revised to adopt the 2002 NESC on June 15, 2003. Rule 279(A)(2)(b)(1) states: "All insulators shall be located at a position that maintains the bottom of the insulator not less than 2.45 m (8 ft) above the ground if the guy is broken below the insulator." Before 2003 the requirements for insulating guys had been unchanged (except for changes in the relevant Rule numbers) since the adoption on October 1, 1984 of the 1981 NESC which stated in Rule 283(B)(2) "Insulators shall be installed as follows: (a) All insulators shall be located at least 8 feet above the ground. (b) Where hazard would exist with one insulator, two or more guy insulators shall be placed so as to include, in so far as is practical, the exposed section of the guy between them. (c) Insulators shall be so placed that in case any guy sags down upon another, the insulators will not become ineffective." Before 1984 the requirement that guy insulators be at least 8 feet above the ground goes as far back as General Order 30 adopted by the Commission in October 1916. The requirement that "insulators shall be so placed that in case any guy sags down upon another the insulators will not become ineffective" dates back to General Order 115 that became effective in August 1927.

## **APPENDIX – 2009 Field Inspection Summaries**

Utility: ComEd Investigators: John Stutsman (Staff) & Tiffany Ingram (Staff)  
Feeder Ckt: Random City: Sugar Grove Area Voltage: 12kV Date: Wednesday, October 14, 2009

While inspecting the W6917 area Staff observed a number of items that were near but not part of circuit W6917 and were on unidentified or random circuits in the area. Staff observed: branches/trees into Primary; multiple locations of missing guy wire guards/markers; bad pole top; vines growing up a guy wire but not to the pole; slack guy wire (no tension).



Vines, missing guy marker, bad pole top

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: NA Voltage: 4 or 12kV Date: Wednesday, October 14, 2009

While transitioning from circuit W6917 to the next day inspection area Staff observed a distribution slack guy wire; at 3 different locations Staff observed Primary insulator mounting brackets where the bottom bolt had almost completely worked out of the pole and Staff speculated that failure would be eminent under adverse wind or weather conditions.



Hardware failure likely under adverse wind or weather conditions

## APPENDIX – 2009 Field Inspection Summaries

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: Random City: Random Voltage: 4 or 12kV Date: Thursday, October 15, 2009

While transitioning to substation DCB54 to begin the circuit B541 inspection Staff observed a number of items from the general area of Freeport to Oregon: misplacement of insulators on guy wire per NESC 279; multiple locations with damaged pole tops; ground wire damage; missing/damage ground wire cover/moldings; a possible hardware failure eminent due to a Primary insulator assembly about to fall out of damaged/bad pole top; bad poles in multiple locations; missing guy wire guard/marker; slack guy wire in multiple locations; significant vine growth on guy wire; blown lightning arrestor; split cross-arm with brace not well secure by bolt; broken cross-arm brace.



NESC 279 concern



Damaged Pole top



Damaged cross-arm



Damaged pole top – hanging hardware – failure eminent



Damaged pole top



Damaged pole top

## APPENDIX – 2009 Field Inspection Summaries



Broken cross-arm brace



Split cross-arm

Utility: ComEd Investigators: John Stutsman (Staff)  
Feeder Ckt: B541 City: Oregon Voltage: 12kV Date: Thursday, October 15, 2009

The inspection started at substation DCB54 where Staff did a fence walk around and observed: the substation yard was neat & clean; substation equipment appeared good; animal protection was visible where appropriate; substation fence perimeter looked good; no grounding straps from gates to gate posts.

The inspection continued to circuit B541 where the following was observed: a damaged pole top where Primary support hardware mounting bolts were visible where there used to be wood – failure appeared eminent under adverse wind or weather conditions; another damaged pole top where Primary support hardware appeared near failure; another location where Primary support hardware appeared near failure; broken ground wire wrapped around pole at two locations; damaged pole base; multiple locations of bad pole tops; loose overhead hardware in multiple locations; trees close to Primary in multiple locations; trees into Primary in multiple locations; vines on guy wire but not up to Primary; slack guy wires in multiple locations; missing or damaged guy wire guards/markers in multiple locations; twisted cross-arm; ground wire molding/cover loose & hanging off of pole; eight or more locations where guy wire insulators have been misplaced on either distribution or transmission plant.



## APPENDIX – 2009 Field Inspection Summaries



Substation yard clean & in good appearance



Damaged pole top, HW bolts visible – Failure eminent



Loose Hardware



Hardware mount near Failure



Hardware near Failure



Hardware issue & bad pole top

## APPENDIX – 2009 Field Inspection Summaries



Trees close/in primary



NESC 279 issue with 2 bottom guy wires for overbuilt



NESC 279 compliance issue



NESC 279 compliance issue



NESC 279 compliance issue

## APPENDIX – 2009 Field Inspection Summaries



NESC 279 compliance issue possibly both poles



Twisted cross-arm



Ground wire molding hanging off pole



NESC 279 compliance issues



NESC 279 compliance issues